

The Foxboro Company

Foxboro, MA 02035 U.S.A.
(617) 543-8750

September 30, 1983

Director, Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Gentlemen:

In accordance with the intent of 10CFR Part 21, we have notified End Users of the Underrange performance characteristic of the Foxboro Model N-E11GM transmitter.

We are enclosing an information copy of our June 23, 1983 letter and the list of the identified End Users to whom it was sent.

Due to the lack of knowledge of specific application, redundancy, and the like, the Foxboro Company cannot determine if the reporting requirements of 10CFR Part 21 are applicable. This determination is the responsibility of the End User and any such reporting should be made by them after completing their evaluation of the situation.

Very truly yours,

THE FOXBORO COMPANY

M. J. Berberian
M. J. Berberian, Manager
Corporate Quality Assurance

wcl
enclosure

cc: C. A. McKay, D110

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FOXBORO

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PDR ADOCK 05000010
S PDR

June 23, 1983

Reference: Underrange Performance Characteristics of the Foxboro Model N-E11GM Transmitter installed at your

Gentlemen:

Our records indicate that you may have our Model N-E11GM Gauge Pressure Transmitter with option code "L" for Elevated or Suppressed Zero Ranges.

This letter is to notify you that an underrange performance characteristic may exist in these N-E11GM transmitters which have been calibrated for a suppressed zero range, ex. 1500-2500 psi.

The performance characteristic is an underrange zero offset which occurs when a transmitter is initially pressurized from atmospheric to the suppressed zero input.

This zero offset, initially 1.5% or less, decreases to within the $\pm 0.5\%$ accuracy specification when the transmitter is exercised through the calibrated range. Since the offset is hysteretic, no adjustment of zero should be made when initially set at the suppressed zero input. Exercise the transmitter input to the full range calibrated input and back to the suppressed zero input before performing either zero or span adjustment.

Foxboro's concern that the underrange zero offset may have an effect on some user applications has prompted this notification. An Underrange Alignment Procedure has been developed to minimize the zero offset to less than 1%. This procedure along with other instructions are, included in SIQ-00127, attached to this notification for users who desire to minimize the offset. If Foxboro assistance is required, our service personnel can be requested at standard service rates.

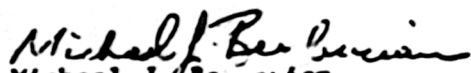
FOXBORO

Page 2

If you have any questions regarding the above, please contact the undersigned directly.

Very truly yours,

THE FOXBORO COMPANY


Michael J. Berberian
Manager, Corporate Quality Assurance

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Attachments

Instruction

Supporting Literature
MI 020-160, MI 020-162

SI

0-00127
June 1983

UNDERRANGE ALIGNMENT PROCEDURE FOR N-E11GM TRANSMITTERS WITH SUPPRESSED ZERO RANGES

General

The N-E11GM Electronic Pressure Transmitter is used to measure gauge pressures in nuclear power plant applications. Many pressure measurement applications are zero based ranges (that is, 0 to 21 MPa or 0 to 3000 psi), but some applications require suppressed zero biasing such as a 10.5 to 21 MPa or 1500 to 2500 psi range. Zero suppression is accomplished by an optional elevation/suppression kit which is supplied with a transmitter under option code letter "-L".

Suppression adjustment is via a screw/spring assembly which biases the force bar to counteract the desired suppressed zero input pressure. Since the suppressed zero input is not at atmospheric pressure, an underranging of the transmitter occurs when this input is removed. An underrange performance characteristic occurs in the form of a zero offset when the suppressed zero input pressure is reapplied. The zero offset is approximately 1.5% or less, and may not be acceptable for some user applications.

An underrange alignment procedure has been developed to further minimize this offset to less than 1% and is detailed herein.

Initial Adjustment of Suppressed Zero Range Transmitter

1. Follow calibration procedure in Instruction MI 020-162 in adjusting transmitter to zero-based span equivalent to the intended suppressed zero span.
2. Determine the zero/span interaction by varying the span screw four turns in either direction and noting the change in zero output. Set the zero output to 1.000 ± 0.004 V dc and the zero output variation per four turns of the span screw should be less than ± 0.020 V dc. If zero output variation is beyond recommended change, then tee flexure adjustment is required. See section "Adjustment After Force Motor Assembly Replacement" in Instruction MI 020-162.

Alignment of vector center leg via tee flexure adjustment may require setting center leg above or below parallel to reduce zero/span interaction. Repeat adjustment until interaction is satisfactory.

3. Attach optional elevation-suppression kit per section "Amplifier and Force Motor Assembly Replacement" in Instruction MI 020-160.

4. Apply suppressed zero input pressure and adjust suppression zero screw until zero output is 1.000 ± 0.004 V dc. The normal zero adjustment screw can be also used as a final fine zero adjustment.
5. Apply upper suppressed range input pressure and adjust output using span screw to 5.000 ± 0.004 V dc.
6. Repeat Steps 4 and 5 until within specification.

NOTE: DO NOT ALLOW THE SUPPRESSED ZERO INPUT PRESSURE TO DROP BELOW THE SPECIFIED LEVEL.

7. After setting zero and span, apply incremental pressure inputs upscale and downscale to determine if calibrated accuracy is within transmitter specification.
8. Note zero output at suppressed zero input pressure. Release suppressed zero input to atmospheric pressure and wait one minute. Reapply suppressed zero input and note output reading. If the difference between the zero output readings is greater than 0.040 V dc and is not acceptable, then proceed to the Alignment Procedure for Underrange Effect.

Underrange Alignment Procedure for Suppressed Range X-EllGM Transmitters
Suppressed Zero Offset

If underrange effect (atmospheric input) is greater than acceptable by the user, then the following alignment of the transmitter topworks can be used to minimize the effect.

- a. Determine error difference between output at suppressed zero input and after release then return to suppressed zero input.
- b. If zero/span interaction has been adjusted to less than ± 0.020 V dc, then continue; if not, perform tee flexure adjustment.
- c. If underrange zero offset is greater than 0.040 V dc, then adjust static screw on force bar one turn clockwise. Release suppression bias assembly, perform capsule renulling per Flexure Cap Screw Locknut Adjustment Procedure in Instruction MI 020-162. Output change after cap screw tightening should be less than ± 0.040 V dc. Cap screw must be tight. If checking tightness causes further output change, then replace washer on cap screw and readjust.
- d. Reconnect suppression kit, apply suppressed zero input pressure, then exercise to full scale input and return to the zero suppressed input, check and adjust zero output, if necessary, to 1.000 ± 0.004 V dc.
- e. Set suppressed zero input pressure, record zero output. Release input to atmospheric pressure for one minute.

- f. Reapply suppressed zero input, record zero output if difference between zero output reading in Steps e and f is not less than ± 0.040 V dc or within desired difference, then repeat Steps c through f.

NOTE: MINIMUM ADJUSTABLE OUTPUT DIFFERENCE MAY BE ONLY TO ± 0.020 V dc AND MAY VARY SOMEWHAT UNIT TO UNIT.

- g. If zero output difference is within acceptable specification, then proceed to check calibration. If zero offset cannot be adjusted to desired difference, then replace capsule per Instruction MI 020-162 and repeat Steps a through f.

END USERS SENT FOXBORO COMPANY LETTER OF JUNE 23, 1983

See attached.

Note- subsequent analysis revealed that some of the Users did not have the particular transmitter involved. These Users, crossed out on the attached, were sent "Letter A." Users having the transmitter involved, were sent "Letter B" which further identified the transmitters in question.

Letter Mailed To:

Transmitter Installation

Subsequent
Letter

~~Alabama Power Co.~~

~~P.O. Box 2641~~

~~Birmingham, AL 35291~~

~~Att: Mr. K. Patrick McDonald~~

~~Vice President, Nuclear Generation~~

~~J. M. Farley Station~~

A

Baltimore Gas & Electric Co.

P.O. Box 1475

Baltimore, MD 21203

Att: Mr. C. H. Poindexter

Vice President, Engrg. & Construction

Calvert Cliffs Station

B

~~Commonwealth Edison Co.~~

~~P.O. Box 787~~

~~Chicago, IL 60690~~

~~Att: Mr. Byron Lee, Jr.~~

~~Executive Vice President~~

~~Dresden Station~~

A

Connecticut Yankee Atomic Power Co.

P.O. Box 270

Hartford, CT 06101

Att: Mr. W. B. Ellis, President

Haddam Neck Station

B

Consolidated Edison Co.

4 Irving Place

New York, NY 10003

Att: Mr. Eugene R. McGrath

Senior Vice President

Indian Point 2 Station

B

~~Dairyland Power Cooperative~~

~~2615 E. Avenue South~~

~~LaCrosse, WI 54601~~

~~Att: Mr. James Taylor~~

~~Asst. General Mgr., Power Group~~

~~LaCrosse Station~~

A

~~The Detroit Edison Co.~~

~~2000 Second Avenue~~

~~Detroit, MI 48226~~

~~Att: Dr. Wayne H. Jens~~

~~Vice Pres., Nuclear Operations~~

~~Fermi 2 Station~~

A

Nebraska Public Power District

P.O. Box 499

Columbus, Nebraska 68601

Att: Mr. Robert Kamber

Asst., General Manager

Cooper Station

B

~~Niagara Mohawk Power Corp.~~

~~300 Erie Boulevard West~~

~~Syracuse, NY 13202~~

~~Att: Mr. Thomas E. Lampagas~~

~~Vice Pres., Nuclear Generation~~

~~Nine Mile Point Station~~

A

Northeast Utilities

P.O. Box 270

Hartford, CT 06101

Att: Mr. W. G. Council

Senior Vice President

Millstone Station

B

Letter Mailed To:

Transmitter Installation

Northern States Power Co.
414 Nicollet Mall
Minneapolis, MN 55401
~~Att: Mr. G. T. Goering, General Supt.
Nuclear-Technical Services~~

Prairie Island Station

A

Omaha Public Power District
1623 Harvey St.
Omaha, Nebraska 68102
Att: Mr. W. E. Miller, Asst. General Mgr.

Fort Calhoun Station

B

~~Philadelphia Electric Co.
P.O. Box 8689
Philadelphia, PA 19101
Att: Mr. S. L. Daltroff
Vice Pres. Elec. Operations~~

~~Peach Bottom Station~~

~~A~~

Power Authority State of NY
10 Columbus Circle
New York, NY 10019
Att: Mr. B. W. Deist
Manager, Nuclear Operations

Indian Point 3 and J. A. Fitzpatrick
Stations

B

Rochester Gas & Electric Co.
89 East Avenue
Rochester, NY 14649
Att: Mr. L. D. White, Jr., Exec.V. P.

R. E. Ginna Station

B

Southern California Edison Co.
P.O. Box 800
Rosemead, CA 91770
Att: Mr. J. G. Haynes, Mgr. Nuclear Op.

San Onofre Station

B

Tennessee Valley Authority
1750 Chestnut St., Tower II
Chattanooga, TN 37401
Att: Mr. H. J. Green
Director of Nuclear Power

Sequoyah, Watts Bar and Brown Ferry
Stations

B

~~The Toledo Edison Co.
Madison Avenue
Toledo, Ohio 43652
Att: Mr. K. P. Crouse, V.P., Nuclear~~

~~Davis-Besse Station~~

~~A~~

Virginia Electric & Power Co.
P.O. Box 26666
Richmond, VA 23261
Att: Mr. R. H. Leesburg
Vice, Pres., Nuclear Operations

North Anna Station

B

Wisconsin Electric Power Co.
P.O. Box 2046
231 W. Michigan St.
Milwaukee, WI 53201
Att: Mr. C. W. Fay, Dir., Nuclear Power

Point Beach Station

B

Wisconsin Public Service Corp.
P.O. Box 700
Green Bay, WI 54305
Att: Mr. E. R. Mathews, Senior, V. Pres.

Kewaunee Station

B

The Foxboro Company

Foxboro, MA 02035 U.S.A.
(617) 543-8750

July 20, 1983

LETTER "A"

Reference: Underrange Performance Characteristics of the Foxboro Model
N-E11GM Transmitter installed at your

Gentlemen:


Reference M. J. Berberian letter of June 23, 1983 reporting on an underrange performance characteristic that may exist in our Model N-E11GM Gauge Pressure Transmitter with option code "L" for Elevated or Suppressed Zero Ranges.

A further check of our computer data indicates that although you may have our N-E11GM transmitters installed, none of these include the option code "L" or are subject to the underrange performance characteristic reported.

Our apologies for any inconvenience we may have caused.

Sincerely,

THE FOXBORO COMPANY


R. G. Shaw, p102
Nuclear Business Manager

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FOXBORO

The Foxboro Company

Foxboro MA 02035 U.S.A.
(617) 543-8750

July 20, 1983

"LETTER B"

Reference: Underrange Performance Characteristics of the Foxboro Model
N-E11GM Transmitter installed at your

Gentlemen:

Reference M. J. Berberian letter of June 23, 1983, copy attached, reporting on an underrange performance characteristic that may exist in our Model N-E11GM Gauge Pressure Transmitter with option code "L" for Elevated or Suppressed Zero Ranges.

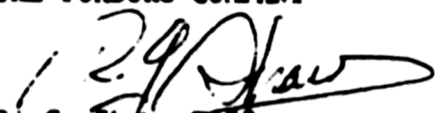
A further check of our computer data indicates that N-E11GM transmitters with option code "L" were furnished on your Purchase Order(s) as follows:

<u>Model</u>	<u>Quantity</u>	<u>Your P.O.</u>	<u>Foxboro S.O.</u>
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We trust that this additional information will be of assistance.

Sincerely,

THE FOXBORO COMPANY


R. G. Shaw, D102
Nuclear Business Manager

wcl
attachments

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